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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/629,213	07/31/2000	Chie-Chi Chen	TS2000-023	3986

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EXAMINER

KORNAKOV, MICHAIL

ART UNIT	PAPER NUMBER
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1746

DATE MAILED: 10/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/629,213

Applicant(s)

CHEN ET AL.

Examiner

Michael Komakov

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 July 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-16 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-16 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

1. Claims 11-16 and 18 are pending in the Application. Claims 11, 14-16 have been amended in Paper No. 14. In claims 11 and 15 the limitation directed to **intermittently changing the pressure of gas** is removed from the scope of the claims. In claims 15 and 16 the gas is limited to nitrogen.
2. Applicants amendment, paper No. 14 has overcome rejections under 35 USC 112, first and second paragraphs, as well as objections to claims, and the above rejections and objections are withdrawn.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 11-16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Advocate, Jr. et al (U.S. 5,904,156) in view of Molinaro (U.S. 5,082,518).

Advocate teaches a method for removing a photoresist film, which can be particularly utilized for removing of photoresist from the vicinity of semiconductor silicon device structures, interposed by metal stack (col.1, lines 5-13; col.2, lines 65-67; col.6, lines 27-30). The method of Advocate comprises providing a false bottom with gas fan (reads on "gas distribution plate", as instantly claimed), which is placed into strip tank with stripping solution; providing pressurized and flow regulated tube for the supply of inert gas, preferably nitrogen, to gas fan, (reads on "pressure regulated gas supply", as instantly claimed); providing a wafer boat (reads on "substrate carrier" or "wafer cassette" for placement wafers in a vertical position; immersing the said wafer boat with

Art Unit: 1746

wafers into the stripping solution and positioning it on the false bottom; generating the pressurized gas flow, which causes aggressive bubbling in the solution around the wafers (paragraph, bridging col.8 and 9; col.9, lines 6-20) and provides the scrubbing of wafers surfaces (col. 9, lines 30-31).

In regard to **aligning** the substrates/wafers, as per instant claims 11 and 15, Advocate teaches that wafers are positioned on the false bottom in certain way, having at least one hole below the wafer to release the nitrogen and create bubbling to agitate the stripping solution (col.10, lines 20-23), which reads on the recited limitation.

Advocate provides for **robust agitation** of stripping solutions (col.9, lines 53-54) and indicates, that introducing of inert gas through a pressurized tube causes **aggressive bubbling** in the solution around wafers (col. 9, lines 8-10).

The teaching of Advocate differs from the instant claims by not utilizing quartz as the material for false bottom. Advocate also remain silent about connecting/attaching the false bottom (distribution plate) and gas fan (pressure regulated gas supply). However, quartz is notoriously used as the construction material for making parts for semiconductor wet processing equipment and, specifically bubbling devices.

Thus, Molinaro teaches a gas diffusion system for evenly distributing injected gas in a bath wherein gas manifold is connected/welded to a flat quartz plate having sized holes for evenly spreading and distributing the gas bubbles throughout the treatment liquid (see Abstract, col.1, lines 36-56; col. 2, line 54, 66-68). Molinaro specifically indicates that quartz has material integrity and can have appropriate surface finish to

Art Unit: 1746

maintain it as inert to the chemicals, thus motivating the skilled artisan to utilize quartz as the material for making parts for wet processing apparatuses.

Therefore, one skilled in the art at the time the invention was made, motivated by the teaching of Molinaro, would have found it obvious to utilize quartz as the material for false bottom and other parts in lieu of stainless steel, used by Advocate in order to enhance visual control over the stripping process of Advocate due to transparency of quartz made parts.

It is also noted here, that connecting gas distribution plate to a pressure regulated gas supply or leaving a distance between this structural elements, or in other words, the configuration of the claimed apparatus, is a matter of choice, which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration of the claimed apparatus is significant, as per *In re Dailey*, 357 F. 2d 669, 149 USPQ 47 (CCPA 1966). If the operation is known in reference to the object, the invention of a new machine for performing it does not make a new process, but only a new instrument for applying it.

In specific regard to the limitations of claims 11, 14, 15 and 18, which are concerned with removing of **adhesive** coatings/photoresists, it is noted here it is axiomatic that one who performs the steps of the known process must necessarily produce all of its advantages. Mere recitation of a newly discovered function, that is inherently possessed by things in the prior art does not cause a claim drawn to these things to distinguish over the prior art, consult *In Re Leinoff v. Louis Milona & Sons, Inc.*

Art Unit: 1746

220 USPQ 845 (CAFC 1984). Since the processing steps are met by applied references, the result, produced by these steps is reasonably expected.

In specific regard to the limitations of claims 12 and 16, the combined teaching of Advocate and Molinaro provides the diffusion plate with the rows of gas bubble generating apertures (Fig 2 of Molinaro) and teaches that one aperture/hole occurs below the wafer, thus providing for corresponding positioning of each wafer with regard to each row of gas bubble generating apertures.

Response to Arguments

5. Applicant's arguments, filed July 21, 2003, have been fully considered but they are not persuasive. The crux of Applicant's arguments with regard to Advocate reference is that while Advocate teaches the removal of the same photoresist and/or coating as instantly claimed, the surface from which Advocate removes his coating is substantially planar, while the instant method cleans residues from pockets and sidewalls. This is not found persuasive for at least two reasons:

a) the preamble of the instant claim 1 calls for removal of adhesive coatings "from a plurality of substrates", not from the pockets and sidewalls. The fact that preamble recites the presence of pockets and sidewalls on substrates does not preclude the removal of coatings from substantially planar surfaces, as well.

b) on the other hand the limitation of the surface to be cleaned appears in a preamble, and in the instant case it merely recites the purpose of a process, and where the body of the claim does not depend on the preamble for completeness but, instead,

Art Unit: 1746

the process steps or structural limitations are able to stand alone, consult *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976).

The following analysis of preamble to claims has been made:

- It is the Examiner's opinion that the preamble language does not provide enough antecedent basis for terms in the body of the claim.
- It is the Examiner's opinion that the language of the body of the claim set out the complete invention.
- It is the Examiner's opinion that the preamble language merely provides a statement of purpose or intended use.
- It is the Examiner's opinion that the preamble language is not essential to understand limitations and/or terms in the claim body.

With regard to Molinaro difference, Applicants expressed the agreement that the use of quartz is obvious in light of combination of Molinaro reference and Advocate reference.

And further Applicants argue that it is not the quartz per se, that is the essence of invention, but instead flexible tubing inserted into a sinous groove in the quartz gas distribution plate. Applicants further elaborate on the usefulness of such flexible tubing for the claimed method.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., flexible tubing) are not recited in the rejected claim(s). Although the claims are

interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Even if *arguendo*, those features "flexible tubings" were claimed, such limitation in the process claims would not be given a significant patentable weight, as being only the limitation of apparatus for performing the known process steps.

Applicants' arguments with regard to JP'419 are moot, because the reference was withdrawn from the scope of rejection due to Applicants' amendment.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Art Unit: 1746

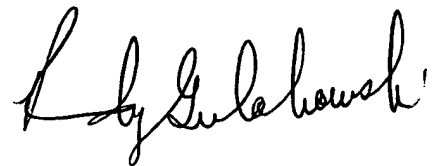
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Kornakov whose telephone number is (703) 305-0400. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (703) 308-4333. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 2450.

Michael Kornakov
Examiner
Art Unit 1746

MK



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